Roadside Observation Survey

of

Safety Belt Use in Indiana

September 2000

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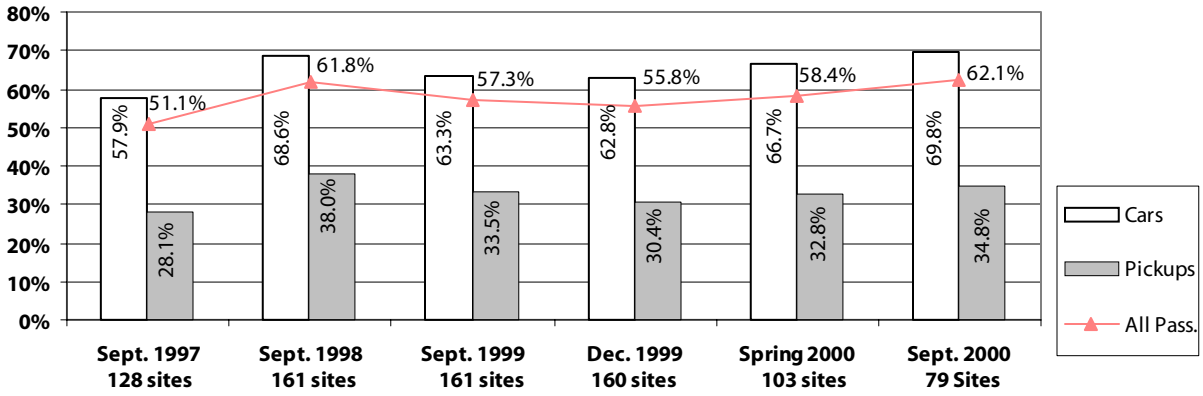
1.0 Executive Summary

This report provides a summary of the September 2000 Indiana roadside observation survey of safety belt and motorcycle helmet use. The work of planning and conducting the survey was performed by the Purdue University Center for the Advancement of Transportation Safety (CATS), formerly Automotive Transportation Center (ATC). The Governor's Council on Impaired & Dangerous Driving and the National Highway Traffic Safety Administration (NHTSA) sponsored the survey.

The September 2000 survey revealed that the usage rate for front-seat occupants of all passenger vehicles was 62.1 percent. The all-passenger-vehicle (or overall) rate was substantially lower than the passenger car usage rate of 69.8 percent, largely due to the continued low usage rate of pickup truck occupants (34.8 percent). In this survey, pickups represented 21.6 percent of the observed vehicles on the roadways. On the other hand, passenger cars and minivans, both vehicles usually covered by Indiana's primary safety belt law, have gone from 69.6 percent (9/98) to 66.4 percent (9/99) to 65.3 percent of the total observed number of vehicles in the most recent survey. Sport-utility vehicles, which can be registered either as a truck or car, are the fastest-growing vehicle segment. However, it is estimated that less than 10 percent of these vehicles are actually registered as trucks.

Figure 1: Safety Belt Usage September 1997–September 2000



Urban freeways had the highest usage rates of any roadway classification (71.6 percent overall and 76.3 percent for passenger cars). The lowest weighted usage rate was 25.0 percent for pickup trucks on rural local or collector roads. Female drivers had a 69.0 percent usage rate versus a 52.9 percent rate for male drivers for all passenger vehicles. This difference was primarily due to the large numbers of unrestrained male drivers of light trucks; the difference was only 5.1 percent for drivers of cars, but was 25.8 percent for large van drivers and 24.8 percent for pickup truck drivers. The female driver rate was significantly higher than the 63.7 percent rate observed in September 1999 and less than 1 percent below the 69.6 percent restrained in September 1998. Female passengers had a 65.1 percent usage rate, lower than the female driver rate but much higher than the male passenger rate of 43.8 percent.

Of the young drivers observed driving with a fellow front-seat young passenger, only 35.1 percent were using a safety belt, and only 33.1 percent of these young passengers were restrained. The young drivers accompanied by an older front-seat passenger had a significantly higher usage rate of 67.4 percent. Both young male and young female passengers had higher usage rates (51.3 percent for young males and 54.1 percent for young females) when riding with an older driver. The restraint usage rate for front-seat child

occupants not restrained in a child safety seat was 49.0 percent (based on 359 observations), which is substantially higher than the 35.5 percent restrained in the Spring 2000 survey.

The overall weighted statewide motorcycle helmet usage rate was 31.8 percent, a decrease from 37.6 percent in 1999.

NHTSA, in its March 2000 formal release of safety belt protocol, allows for the exclusion of both the lowest 15 percent population density areas and the option to exclude local roads from the sampling process. Inclusion of the large counties/cities into the future protocol is a valid alternative, especially as these counties are supported with additional funding, thus allowing Indiana to better evaluate the impact of this decision.

While the change to exclude low-population counties, as approved by NHTSA, improves the reported results, Indiana will continue to be lower than other "primary law states" as long as pickup trucks are excluded from the primary law. These vehicles represent approximately 22–24 percent of the vehicles registered in Indiana. It is estimated that the effect of this exclusion is a lowering of the overall safety belt usage rate by 8–10 percent. More importantly, many lives are unnecessarily lost each year as a result of the Indiana Legislature's inability or unwillingness to change the existing law.

The Governor's Council has increased funding for occupant protection programs in the higher population areas in the State. Only four of these counties are represented in the current survey protocol. As part of the September survey, data was also collected at an additional 61 sites located in these other nine higher population counties to evaluate the impact of the increased funding.

While the September 2000 survey had a number of sites (29 of 164) where the "passenger car" usage rate exceeded 80 percent, there are still many areas in Indiana, primarily rural areas and local roads, where safety belt usage rates are below 50 percent. The exclusion of low population areas, while increasing the reported results, does not address the fact that nearly 75 percent of the fatalities occur in rural areas.

Overall, there was a significant improvement in the observed use of safety belts over 1999 results. Passenger cars achieved a record high usage rate of 69.8 percent, but pickup trucks continue to pull down the overall results for the State. Passage of a primary seat belt law for pickup trucks is critical. Continued education of all vehicle occupants is essential, especially in the more rural areas.

2.0 Survey Design

2.1 Introduction

The September 2000 Indiana Roadside Observation Survey of Safety Belt Use was the twenty-sixth in a series of surveys originally designed in 1985. The first through seventeenth surveys (1986 through 1993) were all conducted using a common protocol. In 1994, the survey was redesigned in conformance with guidelines published in the *Federal Register* [vol. 57, no. 125, June 2, 1992: 2889928904] by the National Highway Traffic Safety Administration; the revised design was discussed in the 1994 report (see also the 1998 report). For 1994 and earlier surveys, reporting was confined to passenger cars. In 1995, the survey was modified to permit reporting for a wider variety of vehicle types, including minivans, sport-utility vehicles, and pickup trucks. Large passenger vans were included for the first time in the 1998 survey as required by new NHTSA regulations. All vehicles identified as commercial have been excluded in each of the surveys.

A review of the 1994 survey design was conducted prior to the 1998 survey for all states through the NHTSA regional offices. The functional roadway classification for each of the 128 sites used in 1997 was

verified using the Indiana Department of Transportation (INDOT) county and city functional classification maps. It was found that only 9 of 28 sites classified as a local road in the 1997 survey analysis were actually a local road in the INDOT database. There were, in fact, 54 arterial sites as compared to the 42 sites considered to be arterial in the 1997 analysis.

To make the 1998 survey meet the intent of the 1994 design, and to correct for the misclassification of sites, 16 replacement sites and 33 additional new sites were selected. The 1998 review of the 1994 design also revealed that two of the counties (LaPorte and Porter) selected to represent high vehicle miles traveled (VMT) would not qualify for selection if the most recent (1997) VMT numbers were used. Since the usage rates were expected to be most variable for local road sites, and the traffic volume much lower than for arterial and collector roadways, a high percentage of these new sites were classified as local roadways. The 1998 survey included 20 local rural sites and 20 local urban sites.

In Spring 2000, the Governor's Council decided to increase the FY2001 funding of the statewide Occupant Protection Program (Operation Pull Over) in the 23 most populous counties, known as the Big City/Big County (BCBC) program counties. The Council requested that CATS design a safety belt observational use survey that could be used to evaluate the effectiveness of this program. To avoid the costs of conducting special OPO surveys in addition to the three annual statewide surveys, a combined survey yielding both statewide usage estimates and county usage estimates for the most populous counties was implemented.

2.2 Spring 2000 and September 2000 Survey Designs

The Spring 2000, 103-site survey used a proportional, random sample of the sites used for the 1998 and 1999 survey. The 1994 survey design called for eight roadway classes (four urban and four rural) and a classification of counties into three strata based on total VMT by county. Thus, there were three strata by eight roadway classes, or 24 cells in the sample design. The number of sites representing each cell varied, since the percentages of VMT accounted for by a roadway class within each stratum were unequal; three of the cells in the sample design were represented by a single site. It was decided to retain these three sites in the survey and randomly select 100 of the other 158 sites to maintain the same proportions of sites in each of the other 21 cells. The desired number of sites for each cell was computed to maintain the same proportions as in the 1999 survey. A random number table was then used to select 100 sites from the 158. Once the desired number of sites for a cell had been chosen, additional choices that would belong to that cell were not accepted for the sample. While there was no requirement that all of the 24 counties represented in the 1994 survey design be included, at least one site from each of the counties was retained in the survey. The number of sites by county in the 1998 and 1999 surveys and the 103-site survey (bold numbers) was as follows:

Allen (14/**9**)	**Fountain** (5/**2**)	Howard (7/**5**)	**Newton** (4/**4**)
Clark (8/**4**)	**Franklin** (4/**4**)	Jackson (7/**6**)	**Perry** (4/**1**)
Clinton (5/**2**)	Gibson (5/**4**)	LaPorte (9/**8**)	Porter (12/**7**)
Daviess (5/**4**)	Hancock (7/**5**)	Marion (14/**8**)	**Ripley** (5/**3**)
Decatur (5/**4**)	Hendricks (8/**5**)	Marshall (5/**4**)	Tippecanoe(8/**6**)
DeKalb (5/**2**)	Henry (6/**3**)	Morgan (5/**1**)	**Tipton** (4/**2**)

Since NHTSA permits states to exclude counties comprising up to 15 percent of the total population from their surveys, it was decided to examine the degree to which Indiana's weighted usage rates would be affected if exclusion of low population counties was exercised. The most recent US Census Bureau estimates for Indiana county populations were used to rank-order Indiana counties by population to determine the cumulative percents of total population. Note that eight of the surveyed counties (Perry, Fountain,

Tipton, Newton, Decatur, Ripley, Daviess, and Franklin), bolded in the table above, are in the lowest population counties that would be excluded if Indiana had chosen to exclude from the sample counties comprising 15 percent of the State population. This reduced the total number of sites by 24 to 79 sites. Appropriate VMT weights were calculated for exclusion of the eight low-population counties.

NHTSA has approved for use the redesigned survey for reporting Indiana's Year 2000 usage rates that employs these 79 sites and groups the 16 counties represented into two groups (eight urban and eight rural counties). NHTSA has also approved the combining of local and collector roads by urban/rural locale into one rural category and one urban category. All of the September 2000 weighted rates reported here use this survey design.

Data were collected on all days of the week. The collection day and time used in 1998 and 1999 was retained whenever feasible. When scheduling constraints dictated a change in time or day, the proportions of sites assigned to weekend days, morning rush, evening rush, and midday time periods were maintained. Observation sessions were evenly distributed during daylight hours (the time period between 6:30 a.m. and 6:30 p.m.). For the September 2000 survey, traffic was observed for exactly 45 minutes at each of the sites versus 60 minutes per site in September 1999. Safety belt use was recorded for front-seat outboard occupants only (driver and right front passenger, if present). The formulas used to estimate usage rates, standard deviations, and relative precision for the September 2000 survey can be found in the 1998 report.

Collection of in-transit motorcycle data was continued, as initiated in 1997, including information on the roadway functional class needed to determine whether there is a relationship between roadway class and helmet use.

3.0 Survey Results

All survey data were collected during the September 11-30, 2000 period. Usage rates were computed for "eligible occupants." Occupants whose restraint usage was coded as unknown and children occupying a front-seat child safety seat were excluded from the eligible occupant counts.

For the 79 sites included in the weighted estimates of overall safety belt usage for September 2000, the number of eligible occupants was 17,153. In comparison, the total number of eligible occupants observed in the 161-site survey conducted in September 1999 was 37,370.

The relative precision estimate for all passenger vehicles was 2.0 percent, well within the NHTSA requirement of 5 percent. Table 1 summarizes the restraint usage rates, relative precisions and 95 percent confidence intervals by vehicle type.

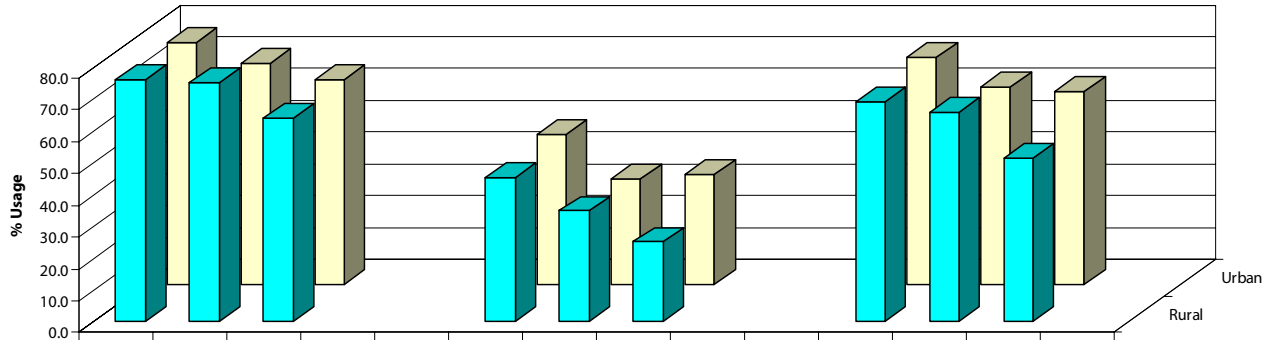
Table 1: September 2000 Safety Belt Usage Summary
79-Sites

Vehicle Type	Percent Restrained		Relative Precision	95 Percent Confidence Interval
	Weighted	Unweighted		
Cars	69.8%	69.2%	1.5%	67.8% -- 71.9%
Pickups	34.8%	33.2%	5.0%	31.4% -- 38.2%
All Passenger Vehicles	62.1%	61.6%	2.0%	59.7% -- 64.5%

3.1 Restraint Usage by Roadway Class

The design of Indiana's survey in 1994 anticipated that safety restraint usage might vary depending on both the roadway classification and urbanization as defined by the FHWA. As permitted by NHTSA regulations, low population counties accounting for less than 15 percent of Indiana's population (as estimated by the US Census Bureau) were excluded from the sample of counties in estimates of usage by roadway class. However, roadways outside the highway system were not excluded. Thus, Indiana's survey permits analysis of restraint usage by FWHA functional type of roadway. Figure 2 below displays the relationships for the September 2000 survey between the weighted restraint usage and roadway class. In this analysis, rural collector roads and rural local roads were treated as a single class as were urban collector roads and urban local roads. Restraint usage rates were higher overall and for pickup trucks in urban locales. Freeways had the highest usage rates of any roadway class, and the overall usage rate varied little between rural (69.2 percent) and urban locales (71.6 percent). The largest difference between urban and rural locales was for the combined class of collector and local roads (61.0 percent for urban roads versus 51.5 percent for rural roads).

Figure 2: September 2000
Usage by Vehicle Type and Roadway Class
79-site Survey



	Cars					Pickups					All Passenger Vehicles				
	Freeway	Arterial	Collector /Local			Freeway	Arterial	Collector /Local			Freeway	Arterial	Collector /Local		
Rural	76.2	75.1	63.9			45.3	34.8	25.0			69.2	65.9	51.5		
Urban	76.3	69.7	64.5			47.1	33.4	34.9			71.6	62.3	61		

3.2 Restraint Usage by Vehicle Type

When examined by vehicle type, the September 2000 79-site data revealed that pickup truck occupants continued to represent the least number of occupants restrained, compared to all other passenger vehicle occupants in restraint usage. Only 34.8 percent (33.2 percent unweighted) of pickup occupants were belted. This is most likely due to the fact that these vehicles remain exempt from Indiana safety belt laws. Since pickup trucks comprised 20.7 percent of vehicles observed in the 79-site survey, improvement in belt usage by pickup truck occupants would have significant potential for saving lives and reducing serious injuries.

For the September 2000 79-site survey, large vans comprised 2.7 percent of the vehicles observed. The unweighted restraint usage rate for large van occupants was 43.5 percent. As with occupants of pickups, the restraint usage for occupants of large vans is still well below the state and national goal of 85 percent.

Safety belt usage rates for the other vehicle types were much higher. Minivan occupants once again exhibited the highest unweighted usage rate (73.4 percent), followed by car occupants (69.2 percent), and sport-utility vehicle occupants (67.5 percent). While sport-utility vehicles may be registered as either a car or a light truck, it is estimated that less than 10 percent are registered as a truck, and therefore are exempt from Indiana's safety belt law.

3.3 Restraint Usage by Gender and Role

In order to facilitate comparisons with the September 1998 and September 1999 surveys, the analysis of restraint usage patterns for drivers versus passengers and males versus females is based on unweighted usage rates from the 103-site September 2000 statewide survey. As seen in Table 2, drivers overall had a higher unweighted usage rate of 59.5 percent versus 57.6 percent for front-seat, outboard passengers. Both the driver and passenger usage rates are higher than for the September 1999 survey and the passenger usage rate was almost as high as the 57.9 percent rate observed in the September 1998 survey.

Table 2: Indiana September 2000 Unweighted Restraint Usage by Vehicle Type, Gender and Role

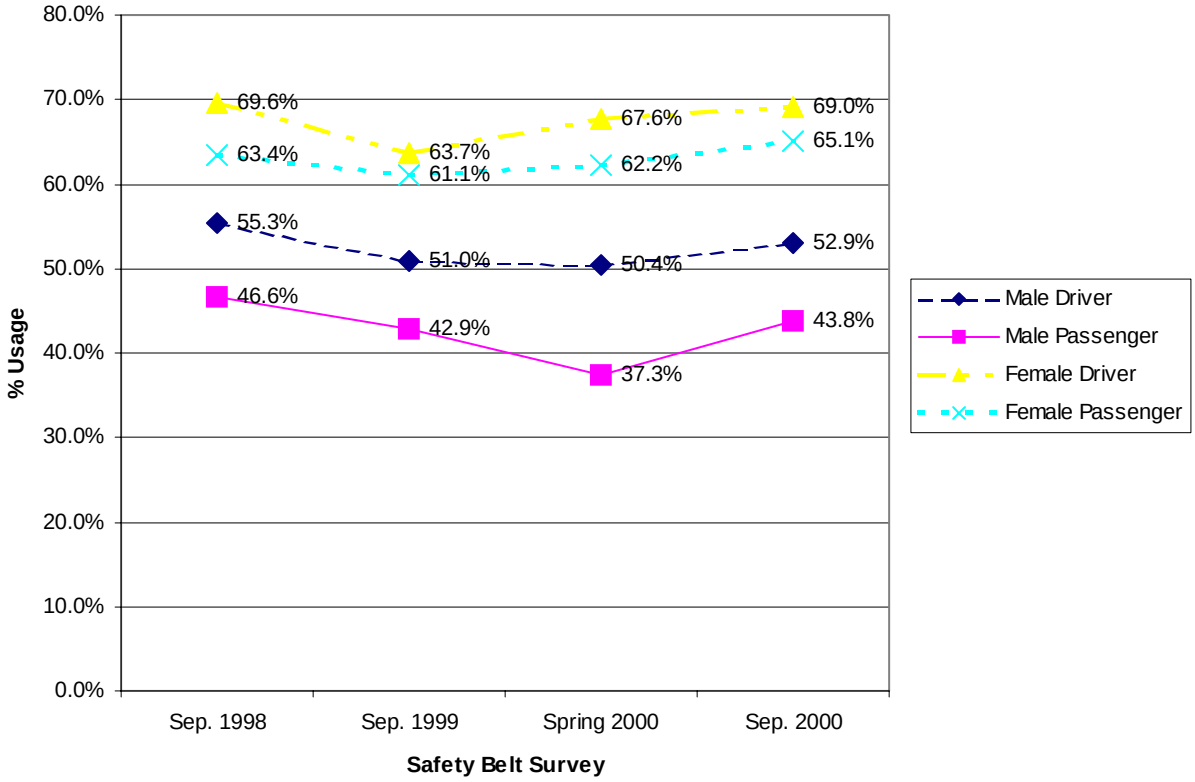
	All Drivers				Front-Seat Passengers				Eligible Occupants
Vehicle Type	R	NR	U	Percent Restrained	R	NR	U	Percent Restrained	Percent Restrained
Cars	6,527	3,056	45	68.1%	1,679	945	56	64.0%	67.2%
Pickups	1,156	2,553	44	31.2%	263	623	26	29.7%	30.9%
Mini-vans	1,204	473	23	71.8%	401	182	20	68.8%	71.0%
Large Vans	174	256	13	40.5%	57	81	12	41.3%	40.7%
SUV	1,181	633	15	65.1%	324	177	18	64.7%	65.0%
All Pass.	**10,242**	**6,971**	**140**	59.5%	**2,724**	**2,008**	**132**	57.6%	59.1%
	Female Drivers				**Female Front-Seat Passengers**				**Both**
Cars	3,288	1,365	15	70.7%	1,197	534	26	69.2%	70.3%
Pickups	202	255	5	44.2%	183	294	10	38.4%	41.2%
Mini-vans	675	231	3	74.5%	312	115	8	73.1%	74.0%
Large Vans	79	57	5	58.1%	38	40	3	48.7%	54.7%
SUV	583	258	1	69.3%	264	88	9	75.0%	71.0%
All Pass.	**4,827**	**2,166**	**29**	69.0%	**1,994**	**1,071**	**56**	65.1%	67.8%
	Male Drivers				**Male Front-Seat Passengers**				**Both**
Cars	3,229	1,690	8	65.6%	476	407	15	53.9%	63.9%
Pickups	954	2,293	18	29.4%	79	322	5	19.7%	28.3%
Mini-vans	525	241	5	68.5%	85	66	5	56.3%	66.5%
Large Vans	95	199	4	32.3%	18	39	3	31.6%	32.2%
SUV	596	375	6	61.4%	59	85	2	41.0%	58.7%
All Pass.	**5,399**	**4,798**	**41**	52.9%	**717**	**919**	**30**	43.8%	51.7%

Note: Drivers and passengers with unknown gender included in totals.

Legend: R= Restrained; NR=Not Restrained; U=Unknown Restraint; All Pass.=All non-commercial Passenger vehicles; SUV=Sport Utility Vehicles

Female drivers had a 69.0 percent usage rate versus a 52.9 percent rate for male drivers. Although female drivers had higher rates for each vehicle type, this difference was only 5.1 percent for drivers of cars, but 25.8 percent for large van drivers and 24.8 percent for pickup truck drivers. The female driver rate was significantly higher than the 63.7 rate observed in September 1999 and less than 1 percent below the 69.6 percent restrained in September 1998. Female passengers had a 65.1 percent usage rate, lower than the female driver rate but much higher than the male passenger rate of 43.8 percent. This usage rate was significantly higher than the 61.1 percent restrained in September 1999 and also higher than the 63.4 percent restrained in 1998. Note that male pickup drivers had only a 29.4 percent usage rate, down from 33.0 percent in September 1998. Male pickup passengers had the lowest restraint usage rate of any sub-group at 19.7 percent, also down from 22.1 percent in 1998.

Figure 3: Indiana Unweighted Restraint Usage by Gender and Role



The male driver usage rate at 52.9 percent was up slightly from September 1999, but down from 55.3 percent in 1998. Likewise, the male passenger rate of 43.8 percent was up by less than 1 percent from September 1999 and down from 46.6 percent in 1998.

3.4 Restraint Usage by Age of Drivers and Passengers

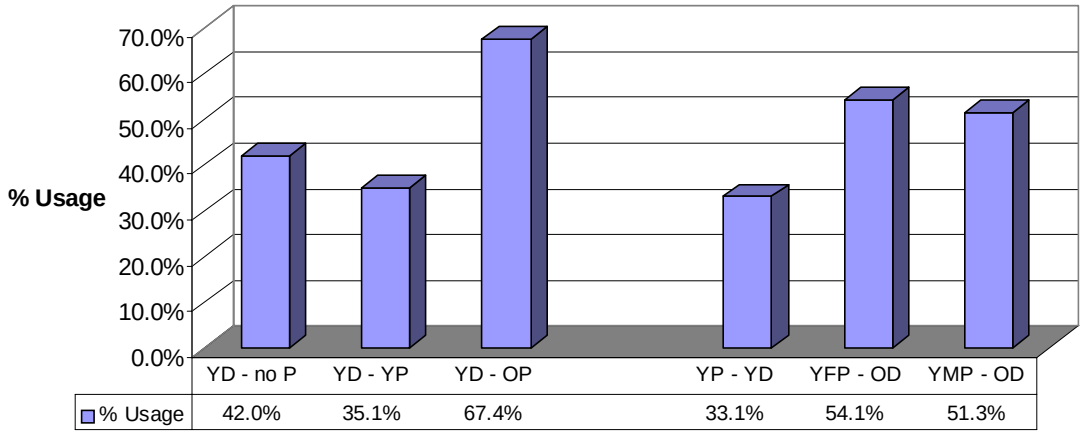
In the September surveys of 1998 and 1999, judgments of the ages of drivers and passengers were coded using three groups for children and three groups for age 16 and above. Observers reported that making age judgments regarding young children was problematic, and the percentage of occupants judged to be ages 16 through 34 varied among observers. It was also felt that the usage rates for both teenage drivers and passengers have been lower than for any other age group. Including young teens with children age 6 and

older and older teens with young adults up to age 34 prevented CATS from using the annual survey to track trends in teenage restraint rates.

The observation protocol was changed for the Spring 2000 survey and the September 2000 survey to code age only if the observer judged the occupant to be a *child* (under age 12) or *young* (ages 12-21). Age 12 was chosen as the lower boundary for the *young* or teenage group since Indiana's current Child Safety Restraint law only covers children through age 11.

Of the 360 young drivers observed driving with a fellow front-seat young passenger, only 35.1 percent were using a safety belt, and only 33.1 percent of these young passengers were restrained. The 837 young drivers with no front-seat passenger displayed a higher usage rate (42.0 percent) than those accompanied by a young passenger, and the young drivers accompanied by an older front-seat passenger had a significantly higher usage rate of 67.4 percent. However, only 46 of 1,250 (3.7 percent) of the young drivers in the survey were riding with an older passenger alongside.

Figure 4: Indiana Restraint Usage for Young Drivers and Passengers

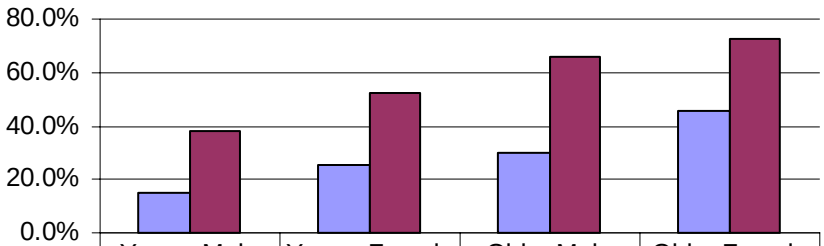


Legend

YD-no P: Young Driver - no **P**assenger
YD-YP: Young Driver - **Y**oung **P**assenger
YD-OP: Young Driver - **O**lder **P**assenger
YP-YD: Young Passenger - with **Y**oung **D**river
YFP-OD: Young Female Passenger - with **O**lder **D**river
YMP-OD: Young Male Passenger - with **O**lder **D**river

Teenage drivers clearly appear to be part-time users of safety belts, and, for various reasons, are least likely to use safety restraints when riding with peers. It is reasonable to speculate that increased supervision of beginning drivers by their parents and mentors should increase the percentage of teenagers that habitually buckle-up. Such an exercise of parental involvement should significantly increase the odds that their child will not be a teenage traffic fatality. Emphasis on awareness of the law and enforcement of the mandatory safety belt aspect of the Indiana Graduated Licensing law should also reduce part-time use of restraints by teenage drivers and passengers.

Figure 5: Usage Rates by Pickup Truck Drivers Compared to Drivers of All Other Vehicles



	Young Male	Young Female	Older Male	Older Female
Pickup Trucks	14.70%	25.70%	30.10%	45.70%
All Other Vehicles	38.00%	52.70%	66.10%	72.30%

Young female drivers had a higher usage rate (51.1 percent) than young male drivers (32.7 percent). Excluding pickup drivers, the young male driver rate was 38.0 percent as compared to 52.7 percent for young female drivers. Excluding pickup drivers has a more pronounced effect on gender comparisons for older drivers. Older male pickup drivers had only a 30.1 percent usage rate while older female pickup drivers had significantly higher usage of 45.7 percent. For older drivers of other types of vehicles, gender differences were small (72.3 percent restrained for females and 66.1 percent for males). Thus, excluding pickup drivers, there are greater gender differences in usage rates for young drivers. The 157 young male pickup drivers had a usage rate of only 14.7 percent and the 35 young female pickup drivers had 25.7 percent usage.

The young female driver usage rate was up from 37.2 percent in the Spring 2000 survey. Young female passengers had a lower usage rate (44.4 percent) than young female drivers, but a higher rate than the 35.4 percent for young male passengers.

Both young male and young female passengers had higher usage rates (51.3 percent for young males and 54.1 percent for young females) when riding with an older driver. The usage rate for the 114 young males riding alongside an older driver was up substantially from 37.1 percent in the Spring 2000 survey.

The restraint usage rate for the 359 observed front-seat child occupants not restrained in a child safety seat, was 49.0 percent—which is substantially higher than the 35.5 percent restrained in the Spring 2000 survey. This is very encouraging and reflects a payoff for an enforcement emphasis on drivers transporting children during the summer months of 2000 by many Indiana law enforcement agencies and educational efforts of the Indiana Safe Kids Coalition, the Automotive Safety Program, and the Governor's Council.

On the other hand, these education efforts encourage drivers to seat child passengers in rear seats. While the 359 child passengers represent only 7.4 percent of all observed front-seat passengers, for 14 of the 103 sites, the percentage of child front-seat passengers exceeded 15 percent.

3.5 Motorcycles and Helmet Usage

Using the estimation procedures described in Appendix B, Section B.3 of the 1998 report, the overall weighted statewide helmet usage rate was 31.8 percent, a decrease from 37.6 percent in 1999. The weighted rate for OFF-SITE data was 39.1 percent and the weighted rate for ON-SITE data was 28.6 percent.

Unlike 1998 and 1999, passengers exhibited a slightly lower helmet usage rate (28.5 percent unweighted) than drivers (33.8 percent). On rural interstate roads, helmet use was 70.1 percent, higher than the 58.3 percent observed in 1999. Helmet use on urban interstate roads was 55.2 percent compared to 56.7 percent in 1999. For other roadway classes, helmet use varied between 13.2 percent and 31.9 percent. Thus, it still appears to be important to distinguish freeway usage from other motorcycle travel.

4.0 Conclusions and Recommendations

Analysis of the September 2000 data, following NHTSA recommendations for collapsing the three strata design used in previous years into an urban/rural county with six roadway groups design, indicated that there was a significant improvement in the observed use of safety belts over 1999 results. Passenger car occupants achieved a record high usage rate of 69.8 percent, but pickup trucks continue to pull down the overall results for the State.

NHTSA, in its March 2000 formal release of safety belt protocol, allows for the exclusion of both the lowest 15 percent population density areas and the option to exclude local roads from the sampling process. CATS encourages continuing to use the survey design, as reported in Section 2.2, in future Indiana surveys, and to continue to have a representative number of local road sites. Also, as approved for the September 2000 survey, these local sites should be grouped with collector roads in the analysis and reporting of results.

Upon examination of the reports obtained from other states, it was noted that a number of these states employed the concept of "certainty" counties. The highest population counties or those containing the largest cities must be represented in the survey. Georgia, for example, designated all 10 counties comprising the Atlanta metropolitan area as "certainty" counties and these counties accounted for 129 of the 314 sites in their survey. As previously discussed, Indiana's 1994 survey design did not specify any certainty counties with the result that only two of the five counties containing a city above 100,000 population were represented in the survey. Also, only eight of the 23 most populous counties were in the set of 24 counties in the 1994 survey design. It is recommended that the seven most populous Indiana counties be designated as "certainty" counties in revisions of the survey.

Inclusion of additional large counties/cities into the future protocol is a valid alternative, especially as these counties are supported with additional funding, allowing Indiana to better evaluate the impact of this decision. It may be desirable to add additional sites representing rural counties to guarantee that future surveys do not have an urban bias.

Indiana will continue to be lower than other "primary law states" as long as pickup trucks are excluded from the primary law. These vehicles represent approximately 22–24 percent of the registered vehicles. The effect of this exclusion is a lowering of the overall usage rate of safety belts by 8–10 percent, and more importantly, an unnecessary loss of lives each year. The strong recommendation to incorporate pickup trucks into the existing primary law continues to be the most significant individual step that Indiana needs to take to reduce highway fatalities.

The most recent survey, when all counties surveyed are considered, had a number of sites (29 of 164) where the "passenger car" usage rate exceeded 80 percent. However, there are still many areas in Indiana, primarily rural areas and local roads, where safety belt usage rates are below 50 percent. The exclusion of low population areas in future surveys does not address the fact that nearly 75 percent of Indiana's traffic fatalities occur in rural areas.

Increased supervision of beginning drivers by their parents needs to be emphasized. This action by parents promises to increase the percentage of teenagers that habitually buckle-up. Emphasis on awareness of the

law and enforcement of the mandatory seatbelt aspect of the Indiana Graduated Licensing law also should reduce part-time use of restraints by teenage drivers and passengers.

Passage of a primary seat belt law for pickup trucks is critical. Continued education of all vehicle occupants is essential, especially, in the more rural areas where 75 percent of the fatalities occur. Finally, zero tolerance in addressing usage of safety belts by police officers will lend credibility to regional and statewide educational efforts.

5.0 References

Besel, Ronald R.; Dennis, Carolyn S.; Drake, Maria L.; Stover, Clifford G.; Thomaz, Jose E. "Roadside Observation Survey of Safety Belt Use in Indiana: Spring, 2000," Purdue University Center for the Advancement of Transportation Safety, August 2000.

Besel, Ronald R.; Dennis, Carolyn S.; Drake, Maria L.; Stover, Clifford G.; Thomaz, Jose E. "Roadside Observation Survey of Safety Belt and Motorcycle Helmet Use in Indiana: September 1999," Purdue University Automotive Transportation Center, January 2000.

Besel, Ronald R.; Caldanaro, Richard; Haley, Mary; Thomaz, Jose. "Roadside Observation Survey of Safety Belt and Motorcycle Helmet Use in Indiana: September 1998," Purdue University Automotive Transportation Center, April 1999.

Mitter, Eric L.; James, Dwayne S.; Cornwell, J. Philip; Besel, Ronald R. "Roadside Observation Survey of Safety Belt and Motorcycle Helmet Use in Indiana: August 1994," Indiana University Transportation Research Center and Purdue University Automotive Transportation Center, November 1994.